ABSTRACT

A novel polymer electrolyte is provided that enables a solid polymer electrolyte used in fuel cells, for example, to have sufficient proton conductivity even in a low-water-content state or a zero-water-content state by using a monomer compound represented by the general formula (1), and a graft copolymer compound in which the monomer compound represented by the general formula (1) is graft-copolymerized to the main chain of a fluorine-containing hydrocarbon polymer.

$$F \longrightarrow F$$

$$Tf \longrightarrow Tf$$

$$H$$

$$\begin{array}{c|c}
CH_{2} & CF_{2} \\
\hline
CH_{2} & CF_{2}
\end{array}$$

$$\begin{array}{c|c}
Tf \\
\hline
Tf \\
\hline
Tf \\
\hline
Tf
\end{array}$$

$$\begin{array}{c|c}
Tf \\
\hline
Tf
\end{array}$$

Tf indicates a trifluoromethane sulfonyl group $(-SO_2CF_3)$.